Botanic Garden at Georgia Southern University
Sustainability Fee Final Grant Report
May 27, 2016

Date: May 27, 2016
Name: Carolyn Altman
Unit: Botanic Garden at Georgia Southern University
E-mail address: caltman@georgiasouthern.edu
Phone: 912-478-7816
Project title: Greencycling and a Living Buffer at Georgia Southern University
Amount Granted: $8,800
Amount Spent: $8,800

Project Outcome/Value

1. **Project timeline:** Project has been completed on time.
2. **Project outcomes:**
   The goals of the project were to 1). add to the Botanic Garden's collections 2). help address air, noise, and water pollution by adding native and heritage plants to the border along Fair Road.

Three, five and seven gallon plants were installed along the border, along with compost and mulch, resulting in a successfully completed project. A total of 719 plants were added to the border, reestablishing the coastal plain woodland while mitigating the environmental problems associated with the property's proximity to the road. Minor challenges included finding enough space amidst tree roots to dig holes, establishing enough pressure in irrigation lines, and removing unwanted species before planting. All were addressed, and the project proceeded successfully.

3. **Sustainability Improvements**

Since the plants have just been installed, their root systems are not established and the plants themselves are small. It would be premature to take measurements on the effectiveness of the project until they are grown in and grown up. However, some educated predictions can be made.

According to the Georgia Forestry Commission, a well-planned planting effort can buffer road noise by up to 50%. Since the project's plantings are above the road on a slight berm, and the plant species were chosen from the recommended list provided for noise reduction by Georgia Forestry, it is anticipated that as the plants grow, they will provide some noise buffering. They will definitely provide a visual block, which provide a psychological sense of calm.

It is well-established that sediment, and the phosphates and pesticides attached to those particles cause much of the pollution of our waterways, and that the interwoven roots of plants can help hold soil in place (Virginia Cooperative Extension, 2016). Once the Botanic Garden's new plants are established, they should reduce the runoff into the nearby Little Lots Creek watershed.

Finally, Pugh et al. found that leafy plants can reduce the concentration at street level of NO2 by as much as 40% and PM by 60 percent, a far greater reduction than previously thought. With the ever increasing traffic load on Fair Road, any reduction will help the impact on the environment and human health.

Literature Cited:

Green Buffers for Screening and Noise Reduction. Georgia Forestry Commission. http://www.gfc.state.ga.us/resources/publications/GreenBuffersforScreeningandNoiseReduction.pdf. Accessed June 1, 2016.

Reducing Runoff and Erosion. Virginia Cooperative Extension. http://pubs.ext.vt.edu/426/426-722/426-722_pdf.pdf. Accessed June 1, 2016.

Thomas A. M. Pugh*, A. Robert MacKenzie, J. Duncan Whyatt, and C. Nicholas Hewitt. Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons. *Environ. Sci. Technol.*, **2012**, *46* (14), pp 7692–7699. Publication Date (Web): June 04, 2012

4. Outreach

Now that the plants have been installed, the Botanic Garden will promote the project through its newsletter and social media sites during the next three months. When a new sound wall is installed over the coming years, and the plants have grown, the project and the Center for Sustainability will receive further promotion.

5. Budget Report

All funds were spent according to the original budget.

II. Student and Community Impact

1. 5 undergraduate students were employed to install the plants for three weeks at 15 hours/week for a total of 225 hours. Over time, it is estimated that 15 hours/week will be spent in student labor to maintain the collection.
2. No graduate students were used for the project.
3. It is estimated that 15 hours/week of volunteer labor will be used to maintain the collection over time.
4. The Garden is used annually for an estimated 20 classes. These classes will benefit from the increased calm and quality of the Botanic Garden and its collections. Hundreds of additional students who visit the Botanic Garden on their own will also benefit each year, resulting in an improved experience for thousands.
5. In addition to the thousands of members of the general public who visit the Botanic Garden annually, the thousands who drive past the Botanic Garden weekly on Fair Road will benefit from the improved visual appeal of the installation. In addition, the entire community will benefit from the improved environmental conditions. This is a project with long term impact.
6. Grant Leverage – This grant was helpful in leveraging an additional $23,000 from the Stanley Smith Horticultural Trust, which awards funds for the improvement of horticultural gardens. The steady improvement of the Botanic Garden, thanks in part to the Center for Sustainability, make it increasingly attractive for outside additional funding.

Project Abstract

The goals of *Greencycling and a Living Buffer at the Botanic Garden* were to 1). add to the Botanic Garden's collections 2). help address air, noise, and water pollution by adding native and

heritage plants to the border along Fair Road. Three, five and seven gallon plants were installed along the border, along with compost and mulch, resulting in a successfully completed project. A total of 719 plants were added to the border, reestablishing the coastal plain woodland while mitigating the environmental problems associated with the property's proximity to the road.